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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/926,425	10/30/2001	Kazuhisa Sakamoto	107400-00043	2475

7590 03/04/2004

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EXAMINER

HU, SHOUXIANG

ART UNIT	PAPER NUMBER
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2811

DATE MAILED: 03/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/926,425

Applicant(s)

SAKAMOTO, KAZUHISA

Examiner

Shouxiang Hu

Art Unit

2811

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 December 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,5 and 9 is/are pending in the application.
- 4a) Of the above claim(s) 2 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,5 and 9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement filed on 6/6/03 (Paper No. 7) fails to comply with 37 CFR 1.98(a)(1), which requires a list of all patents, publications, or other information submitted for consideration by the Office. Applicant should submit the IDS in Form PTO-1449 listing all the relevant prior art references including the ones provided in PCT/ISA/210. It has been placed in the application file, but the information referred to therein has not been considered.

Drawings

2. The corrected drawings filed on 12-11-03 were received. These corrected drawings are approved.

Claim Objections

3. Claims 1, 5 and 9 are objected to because of numerous informalities and/or defects, including but not limited to the following ones:

The terms of "said portion" and "the strip" lacks sufficient/definite antecedent bases.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 5 and 9, as being understood in view of the claim objections above, are rejected under 35 U.S.C. 102(b) as being anticipated by Palara (US 5,408,124).

Palara discloses a semiconductor device with a bipolar transistor (particularly see Fig. 7, in view of Fig. 4, and col. 7, lines 12-48), comprising: a collector region (20 and 21; N type); a base region (22; P type); an emitter region (24; N type); a base contact region (the region of the base layer 22 that is directly under the base electrode 23) spaced apart from the emitter region (24) and electrically connected to the base electrode (23), wherein the emitter region comprises a plurality of strips (each formed of a paired of stripe regions, 24); a portion of the base region can be regarded as having a plurality of portions exposed at the central portion of each pair of the stripe regions and arranged along the direction of the strip regions; and an emitter electrode (27) is connected to each of the paired stripe regions and covers the exposed portions of the base region via an insulating film.

Regarding claim 5, the base electrode (23) and the emitter electrode (27) are naturally in comb structures with their teeth being alternately arranged, since both of them are stripe-shaped.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 1, as being best understood in view of the above claim objections, is rejected under 35 U.S.C. 103(a) as being unpatentable over Palara (US 5,408,124) in view of Kim et al. ("Kim"; US 5,432,360).

The disclosure of Palara is discussed as applied to claims 5 and 9 above.

Although Palara does not expressly disclose that the base contact region can be constructed of a repeating structure of alternatively arranged P+ and N+ regions, one of ordinary skill in the art would readily recognize that such repeating structure can be desirably formed in a contact region in order to reduce the minority carrier accumulation in the contact region, so as to reduce the recovery time, as evidenced in Kim (see the repeating structure in Fig. 1C; and col. 1, line 18, through col. 2, line 21).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the repeating structure of Kim into the base contact section of Palara, so that a semiconductor device with reduced recovery time would be obtained.

Response to Arguments

8. Applicant's arguments filed on 12-11-03 have been fully considered but they are not persuasive, as explained below.

9. Applicant's main arguments include: Palara fails to teach the cited limitations that a plurality of portions of the base region are exposed at the central portion of each of the stripe regions and arranged along the direction of the strip regions, as allegedly shown in Fig. 16 of the instant invention. In response, it is noted that the cited limitations does not definitely and uniquely reflect the basic features of Fig. 16, which including the bridge sections in each of the strip regions, so that each of the plurality of portion of the base regions is isolated and surrounded by the heavily doped emitter region within each of the emitter strip regions. Such features upon which applicant appears to rely are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Due to the lack of definite and unique limitations reflecting the basic features of Fig. 16, the exposed portions of the base region in Palara are readable as the plurality of portions of the exposed base region as recited in the rejected claims, since a central base region can always be regarded as being formed of a plurality of portions arranged along the emitting strip direction.

Conclusion

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shouxiang Hu whose telephone number is 571-272-1654. The examiner can normally be reached on Monday through Thursday, 7:30 AM to 6:00 PM.

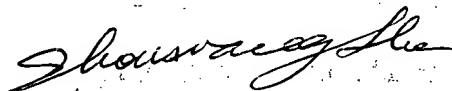
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie C. Lee can be reached on 571-272-1732. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2811

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SH

February 24, 2004



SHOUXIANG HU
PRIMARY EXAMINER